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Future Reserves 2020: Perceptions of Cohesion, Readiness and Transformation in the British Army Reserve

In 2013, the British Ministry of Defence (MoD) outlined a profound reorganisation of the British Army Reserve, known as *Future Reserves 2020* (FR20). To offset a 20 percent reduction in the regular army's Manning, FR20 sought to expand the Army Reserve (AR) from 19,000 to 30,000 by 2019. It also pledged £1.2 billion to better train, equip and integrate the force with the regular army so it could routinely deploy alongside it on operations (MoD, 2013). The cuts in regular strength were concentrated on the Combat Service Support (CSS, or logistics) component, and in particular the Royal Logistics Corps (RLC) and Royal Electrical and Mechanical Engineers (REME). Indeed, one of the central organising tenets of this increasing reliance on the reserve component was that CSS reserve sub-units (companies) would now deliver much of the operational capability previously provided by their regular counterparts through better integration into the army's deployment schedule (MoD 2013a, p.22; MoD, 2013b). While in many respects this attempt to transform the reserves mirrored that undertaken in the US (Griffith, 2009a), this new vision articulated a step-change in the prominence of the AR - and in particular its logistics component - in British defence policy, as well as a major transformation of a force that has traditionally been a strategic reserve. The regular army will therefore be more dependent on the ability of these elements to deploy quickly and perform effectively (Interview with senior officer, 16 January 2014). Unit cohesion and readiness are two standard measures of military effectiveness, and as a result increasing these factors in reserve logistic forces is important to the overall success of FR20. In short, through better equipment, training and integration with the regular army, FR20 would be expected to

make reserve units more cohesive, more ready and hence more effective on operations. Complimenting previous cohesion research, and to understand the effect of FR20 to date, this study therefore utilises a quantitative methodological approach to statistically examine perceptions of these, and the FR20 transformation more broadly, at the sub-unit level. Overall, it makes an original contribution of statistically significant new data on the AR and FR20. In doing so, it makes a number of distinct but linked arguments in relation to both the policy and the cohesion literature. Firstly, that reservist perceptions of cohesion, morale and readiness are relatively high, and are interrelated. Secondly, that although the FR20 reorganisation has not negatively impacted these factors, it has not significantly increased them either, raising questions about the policy's effectiveness. Thirdly, that confidence in FR20 delivering its goals is decreasing over time. And finally, contrasting the literature on the importance of task cohesion in modern professional armies, that social bonds remain the main locus of cohesion in the reserves. While these findings are hopefully interesting to policy makers, they also add new data and nuanced argument to scholarly debates about cohesion in reserve forces in general. .

FR20's focus on increasing reserve logistics capability provides the rationale and context for this paper's quantitative examination of perceptions of cohesion, readiness, and organisational change in predominantly AR logistics units. In doing so, this paper presents the first ever quantitative research on perceptions of cohesion and readiness in the British AR. Throughout, it operates at both the individual and sub-unit levels of analysis respectively. It uses a number of complimentary quantitative approaches to examine distinct but related elements of the relationship between perceptions of cohesion, readiness and transformation in the AR. The paper therefore proceeds in four parts. Firstly, it utilises the 'Standard Model' of cohesion (Siebold, 2007) to examine reserve logisticians' perceptions of cohesion, readiness and morale. This gives a good baseline understanding of these issues. Then, in order to better understand the relationships

between the above factors,, advanced statistical analysis is undertaken to isolate background characteristics, and examine how reservists' perceptions of cohesion influence readiness and morale. Thirdly, to directly address other important elements of FR20, perceptions of integration with the regulars and the effectiveness of FR20 are examined. Finally, to reflect more broadly on the data, selected units are examined to indicate how the FR20 reforms have impacted all these perceptions over time. In order to compliment previous qualitative research that found that social cohesion was more important in the AR than the regulars (Author, 2017), comparisons are made with data from regular units to elucidate differences between reserve and regular perceptions of cohesion.

Measuring Perceptions of Cohesion

Military group cohesion is complex and difficult to measure, with many definitional, methodological and level of analysis issues identified (Siebold & Kelly, 1988, Siebold 1999, 2012; Beal et al., 2003; Wong et al., 2003; MacCoun et al., 2006; MacCoun & Hix, 2010; Mullen & Copper, 1994). While these issues have resulted in lively debates (Siebold, 2007; King, 2007; Siebold, Crabb, Woodward & King, 2016) over the classical social psychology focus on attachment to the group and the more recent emphasis on military praxis, there is widespread acceptance among scholars that cohesion is essential for successful military group performance (King, 2013; MacCoun & Hix, 2010; Griffith, 2007; Shils and Janowitz, 1948; Siebold, 2011). However, despite the fact that AR conditions of service are different to the regulars - most notably in that the reserve is part time and deployment remains voluntary without a specific mobilisation order - recent studies of the British Army Reserve (Dandeker et al., 2011 [which predominantly examines the AR during the 2000s]; Connelly, 2013 [which discusses cultural barriers to integration between regulars and reservists]; Edmunds et al. 2015 [the strategic and financial origins of FR20]; Author, 2016 [AR recruitment and retention]),there is no

existing quantitative study of cohesion and readiness in the British AR nor how this has been affected by FR20. Indeed, a review of the British reserve literature reveals a lack of recent sociological research, with most works predominantly historical (Beckett, 1982, 2008; Cunningham, 1975; Kirke, 2008; Mitchinson, 2005, 2008; 2014). Walker's study of the Territorial Army is the most sociologically informed of these, and he briefly noted the importance of 'drill hall club' social cohesion in the TA at the time (1990, 102). The literature on US and European reserve forces has not examined their cohesion either (Ben-Ari & Lomksy-Feder, 2011; Griffith, 2009a; Griffith, 2009b; Griffith, 2011; Lomsky-Feder et al., 2008; Sion & Ben-Ari, 2005; Vest, 2013; Weber, 2011). Thus, this paper is well situated to contribute quantitative cohesion data to the reserves literature in general and on the post-FR20 Army Reserve in particular.

This paper seeks to address these gaps by drawing on previous quantitative cohesion studies conducted in the US and other Western militaries to examine cohesion using the Standard Model. A useful classical definition of cohesion under the Standard Model has been provided by Guy Siebold: 'The level of unit cohesiveness is defined as the degree to which mechanisms of social control operant in a unit maintain a structured pattern of social relationships between unit members, individually and collectively, necessary to achieve the unit's purpose' (Siebold, 1999, p. 18). While King (2013) has challenged this view and used fieldwork and close qualitative arguments to add much needed nuance to the 'cohesion debate' - and his approach has also been applied to the Army Reserve elsewhere by this author, this paper uses the Standard Model to quantitatively measure cohesion as it provides an alternative but complementary method of analysis that is especially useful for judging FR20's effect and informing future policy.

Following Siebold's definition, three basic components of unit cohesion were originally identified: horizontal, vertical, and organisational. Each component was conceived of having an affective (emotional or feeling, known as social cohesion) aspect

and an instrumental (action or task, known as task cohesion) aspect. The components of small unit cohesion listed with their affective and instrumental aspects, respectively, are: (a) horizontal cohesion (peer bonding and teamwork); (b) vertical cohesion (leader caring and leader competence); and (c) organisational cohesion between soldiers and their units (pride and shared values, and attainment of needs and goals). More recently, a fourth component, institutional bonding – referring to the ties between group members and their wider branch of service and with similar aspects to the organisational component – has been argued to exist (Salo & Siebold, 2005). Within the Standard Model, leadership and shared organisational goals have been shown to be strongly related to organisational and peer bonding in particular (Bartone & Kirkland, 1994; Griffith, 2002). The components and their aspects are outlined below:

Standard Model Cohesion Components

| | Affective | Instrumental |
|-------------------------------|---------------------|---------------------|
| <i>Horizontal Bonding</i> | Peer Bonding | Teamwork |
| <i>Vertical Bonding</i> | Leader Caring | Leader Competence |
| <i>Organisational Bonding</i> | Unit Values & Pride | Unit Rules & Norms |
| <i>Institutional Bonding</i> | Army Values & Pride | Army Rules & Norms |

Two main instruments, each involving questionnaire items asking soldiers about their perceptions of cohesion, are used to measure each aspect of each component. Siebold and Kelly's (1988a) Platoon Cohesion Index (PCI) is considered to be the clearest way to measure cohesion at the platoon or sub-unit level. The 20-item questionnaire PCI is a shortened version of the 79-item Combat Platoon Cohesion Questionnaire (CPCQ) developed after extensive research on behalf of the US Army in 1986-87. It clusters items onto scales to measure each aspect of each component, with scales composed of two items each (Siebold & Kelly, 1988b). Analysis has shown that three factors are formed and there is one factor for each cohesion component. Interscale correlations range from .6 to .9, with the most typical being about .7. All of these components have been significantly correlated with subsequent group performance in numerous studies (Beal et al. 2003;

MacCoun & Hix, 2010; Mullen and Copper, 1994). The PCI and its variations have also been used to measure cohesion in surveys of units in the US, Israel, Norway, Canada and Finland (Gal, 1986; Salo, 2011; Siebold, 1996). The results of the PCI have matched commanders' assessments of their unit's cohesiveness, and have also been shown to have predictive validity with unit performance on training exercises (Siebold & Kelly, 1988a). A more recent study conducted on behalf of the MoD on the impact of the introduction of females into regular British Army combat units also utilised the longer CPCQ (Berkshire Consultancy, 2010). Therefore, both the CPCQ and the PCI are tried and tested methods of measuring unit cohesion; the shorter PCI is utilised in this study for brevity. Interestingly, a review of the Standard Model literature also revealed a very limited number of longitudinal studies of cohesion, of which Siebold's (1996) examination of cohesion in US Army and National Guard units before, during and after their deployment on a Sinai peacekeeping mission was the only directly relevant. The other extant cohesion instrument is the questionnaire developed by James Griffith for his research in the US army, which he adapted from long-standing US survey research on unit cohesion (Griffith, 1998, p. 162). However, Griffith's cohesion scales are arguably less accurate than the PCI for measuring cohesion, and a slightly adapted version of the PCI, modified to reflect the sub-unit level, is used in this study.

While there is strong evidence for an association between cohesion and performance, the relationship is bi-directional, i.e positive performance can increase group cohesiveness. However, in this study, positive performance is viewed as a desired outcome of the FR20 reforms. Therefore, data reporting increases in sub-unit cohesion due to better performance does not invalidate but rather strengthens the findings. A further word on the specific methods used to assess cohesion and readiness in the selected sub-units is required. As the proponents of the Standard Model admit themselves, the survey approach is limited to ascertaining unit members' *attitudes* toward their units and their

perceptions of unit cohesion (Siebold, 2012). As such, the Standard Model offers a snapshot – albeit a highly-informed and complex one – of cohesion. While results of the Standard Model have been correlated to later collective performance, this approach does not assess the interactions which constitute collective performance themselves. Related to this is the concept of causality. While there may be some direct causal relationships, even the multiple regressions of the Standard Model cannot prove causality in cohesion – at best they indicate a moderate correlation ($r = .4$) between higher cohesion and higher performance (Siebold, 2012, p.50; Oliver, 1999) whilst the strongest relationships between the components of cohesion and cohesion itself – for example the effect of good leadership on the unit – can also only be moderately correlated ($r = .6$) (Siebold, 2012, p.50). Similarly the Standard Model is also open to critique because, as Hogg has identified, social psychology's 'group level theories readily tend to dissolve into theories of interpersonal processes' (Hogg, 1992, p. 54); collective activities are often explained by numerous individual relationships, rather than looking at collective performance itself as King does. However, this paper recognises that neither quantitative nor qualitative analysis can provide a single definitive picture of the 'whole' of the FR20 and cohesion problem, and it simply aims to examine it from a different methodological and sociological perspective than existing works to enhance understanding.

Measuring Perceptions of Readiness and Morale

Military readiness can be defined as the ability of military forces to fight and meet the demands of the national military strategy. At the sub-unit level, readiness refers to the unit's ability to carry out assigned missions. Despite numerous other definitions of morale (Gal, 1986, p. 549-551.), this study uses that provided by Ingraham and Manning, and also used by Reuven Gal: 'A psychological state of mind, characterised by a sense of well-being based on confidence in the self and in primary groups (Ingraham & Manning, 1981, p. 6). Griffith's 1988 paper is very useful in terms of expanding on soldiers'

perceptions of unit readiness and morale not directly addressed in the PCI. Specifically, it included 19 items from the Combat Readiness Morale Questionnaire (CRMQ) developed by Gal to measure soldiers' perceptions of group and individual readiness and morale in the Israeli Defence Forces (Gal, 1986), as well as other items previously used by the US military. Crucially, Griffith has shown that measures of sub-unit readiness, such as soldier morale, confidence in leaders, willingness to deploy, and confidence in weaponry and equipment are strongly influenced by perceptions of unit cohesion (Griffith, 1988, p. 162). Griffith also reported positive relationships between soldiers' perceptions of cohesion and levels of individual morale. In order to ground the data in previous research and allow comparisons to be made with British AR soldiers, similar items measuring readiness and morale were adopted in this study.

Finally, to gain an accurate picture of FR20's impact to date on respondents' sub-units, it was necessary to generate a sub-set of items specifically addressing this issue. Other sub-sets consisted of items concerning reservists' experiences of integrating with the regulars.

Study Aims and Approach

Based on this overview of the Standard Model, readiness and morale literature, the study set out to achieve the following:

- a. For the first time, analyse cohesion, and readiness and morale perceptions at from AR logisticians at the individual level.
- b. Isolate the influence of background characteristics on these perceptions and the relationship between cohesion, readiness and morale in British AR logisticians.

- c. Examine these perceptions at the sub-unit level in order to identify differences the longitudinal impact of FR20 on perceptions of cohesion and readiness at the sub-unit level.
- d. Examine perceptions of integration with the regulars and the impact of the FR20 to ascertain the trajectory of the organisational transformation.

Hypothesis 1: Following previous research, sub-units with higher cohesion should report higher levels of readiness and morale

Hypothesis 2: Following previous research, reserve sub-units should display higher levels of affective bonding than their regular counterparts.

Hypothesis 3: Reservists' perceptions of cohesion and readiness should increase as FR20 continues, as increased equipment, training, and opportunities are made available.

Sample Description, Survey Design and Administration

The survey was delivered twice in a 12-month period in April-June 2015, and 2016. The survey was endorsed and distributed in both paper and electronic formats by the chain of command. While soldiers were briefed that participation was voluntary, some may have been told to complete them during duty hours. Over 1,500 personnel from 43 units were approached to participate in 2015, and the study sample ($n=427$) was statistically representative of the reserve logistics population ($n=4,617$), according to a chi square goodness-of-fit test ($1, n = 427$) = .39, $p = .53$. Consistent with the AR in general, 13 percent of the sample were female and 61 percent aged between 35-54, indicating considerably more females (9 percent) than, and a similar age profile to, the regular army (MoD, 2017b). While the survey may have captured reservists who were more willing to respond to surveys and hence have higher perceptions of cohesion, the response rate (29 percent) was very similar to AR rates in the Ministry of Defence's Reserve Continuous Attitudes Surveys (or ResCAS: MoD, 2018). ResCAS items have been refined and

developed over the years, including as a result of recent research (Author, 2016), but they do not directly address cohesion and readiness, nor perceptions of FR20. While ResCAS is endorsed by the chain of command and some units do parade their soldiers to fill out the questionnaires, overall the relatively low response rate is typical of the AR due to the part-time nature of their service and more limited access to defence IT systems. Indeed, in 2016 the sample (n=258) was too small to be statistically representative. Thus, three reserve sub-units with the highest response rates and internal validity during the study period – and a regular infantry and regular logistics sub-unit – were used for the regular-reserve comparisons presented below. The findings concerning changes to cohesion since FR20 therefore represent an initial indication rather than a definitive picture. Importantly however, the results of the 2015 data are all representative of the wider reserve logistics population.

The survey contained two sub-questionnaires: a modified PCI and the CRMQ questionnaire. It consisted of 60 items. Nine items asked respondents about their background characteristics, including which unit and sub-unit they belonged to, level of education achieved, marital status and time in service. This was followed by the 20 items of Siebold & Kelly's PCI, with items adjusted to focus on the sub-unit, rather than the platoon. 14 items were taken from the CRMQ used by Gal (1986), Griffith (1998), and Vaitkus & Griffith (1990) respectively. Five further items asked soldiers about their levels of confidence in FR20 and its impact on their sub-unit. Finally, soldiers were asked if they had served with the Regulars in the last 12 months. Those who had proceeded to answer a further seven items on their experiences of integration with the Regulars. Possible answers were on a 5-point Likert scale ranging from 1 = 'Very Strongly Disagree/Very Low'; 2 = 'Disagree/Low'; 3 = 'Can't Say/Moderate'; 4 = 'Agree/High'; and 5 = 'Strongly Agree/Very High'. This method of coding followed ResCAS, but differed to Siebold and Kelly's. Using these already established questionnaires also

allowed comparison with previous research. Near the end of the survey a set of questions acted as a criteria scale for the earlier scales and as lie detectors.

One major issue identified with longitudinal surveys in armies is the high turnover of personnel which can affect the stability of data.¹ Unfortunately, as the MoD required the full anonymization of data, it was impossible to track individual soldiers. While this is a methodological weakness, stable response rates in the selected sub-units were able to mitigate this somewhat. Indeed, the moving of individuals away from the unit, or the introduction of new members is viewed as representative of the social life of the sub-unit, and the response rates in the selected sub-units were stable enough that weighting was not needed. Similarly, changes in leaders and deployments can also account for changes in cohesion and readiness. These were taken into account in the research. Any major changes in the sub-units circumstances were identified and used to inform the subsequent analysis.

Analytic Approach

Two levels of analysis are used in this study. A statistically significant sample of the RLC/REME population is utilised to illustrate perceptions in this wider group, while eight sub-units where survey response rates were the highest are selected to provide data at the sub-unit level of analysis. The sub-unit level was utilised as it provided more stable sample groups for longitudinal comparison.

Method

Details of the method employed in this study are in Annex A. A basic outline is provided here for coherence. Firstly, in order to prove that the PCI was statistically applicable to the sample, their responses to PCI items were tested through reliability analysis at the individual item and scale levels. Similarly, the reliability of the PCI scales was proven

¹ I am indebted to Guy Siebold for this point.

through Exploratory Factor Analysis (EFA). Details of the cohesion components and the PCI items that made each component are detailed in Table 1 below.

Table 1 here

Then, to generate a total cohesion score to enable easier longitudinal comparison at the individual level, a scale ('Total Cohesion') was created to include all the PCI scales. The means and standardisation deviations were then calculated to give a base understanding of perceptions of cohesion at the individual level. Next, EFA and Confirmatory Factor Analysis (CFA) identified two factors in the 14 items taken from the CRMQ: these created scales labelled 'Sub-Unit Readiness and Morale' and 'Personal Confidence'. Once all these scales were created, it was necessary to statistically isolate the relationship between background characteristics, cohesion, sub-unit readiness and morale, and personal confidence outcomes. In order to determine cohesion's unique contribution to these outcomes, separate multiple regressions were then conducted, first with only background characteristics included and then with scores from the Total Cohesion scale (see Table 3) added and regressed onto both the Sub-Unit Readiness and Morale, and Personal Confidence scales.

Results

Individual Perceptions of Cohesion

The means and standard deviations for the sample cohesion scores at the individual level are presented in Table 2 below. The means of each of the cohesion components present the average score at the individual soldier level on each of the scales. The standard deviation shows the amount of variance from the mean that should be expected. As each scale was created from two items, the mean score throughout the 2015 PCI survey was 4 out of 5 - 'Agree/High' - for each item giving a combined score of around 8 for the two items, indicating relatively strong perceptions across all the components of cohesion. Overall, these reservists' perceptions of cohesion were therefore positive in 2015.

Table 2 here

Of note is that the Organisational Bonding, Needs scale recorded the lowest scores, indicating that reservists are less satisfied with their amount of time off and social events than other areas of cohesion. More positively, the highest recorded scores concerned the Horizontal Bonding, Instrumental, scale which records perceptions of lower ranks' levels of team work. This finding was supported by high scores in the Organisational Bonding, Affective, Pride scale which measures lower ranks' pride in their sub-unit and their positive contribution to sub-unit missions. Both Vertical Bonding scales also displayed high means, indicating that leadership in the sub-units is generally perceived as strong and that the relationship between ranks is good. In terms of the renewed effort to inculcate army values across the integrated force (MoD, 2015), the results indicate that this is not a problem area among the sample, with 'Agree' the most common response to items concerning leaders setting the example in regards to values, and lower ranks upholding and supporting these values. Similarly, at slightly lower levels, the Organisational Bonding, Instrumental, Anomie scale shows that perceptions of discipline are relatively high.

Individual Perceptions of Sub-Unit Readiness and Morale

This section presents the sample's 2015 responses to a selection of the sub-unit readiness and morale items from the CRMQ. Again, overall, the results showed relatively strong perceptions of readiness and morale. About 33 percent of the sample thought that their sub-unit's readiness was in the high categories, 48 percent in moderate, and 17 percent in the low categories. The distribution of scores was slightly skewed toward higher perceptions of sub-unit readiness, indicating more positive attitudes. Nevertheless, the fact that the majority reported moderate over high readiness is noteworthy, especially when compared to the PCI scales in which the average response was usually in the 'Agree/High' category. One explanatory factor could be that as members of reserve sub-

units, these soldiers are more aware of their more limited readiness, and of their sub-unit's tiered readiness as determined by the Army2020 training and deployment cycle. Interestingly, soldiers' perceptions of their individual readiness to fight if necessary was significantly higher (49 percent responded 'High') than perceptions of sub-unit readiness. Almost 70 percent of respondents said that their sub-unit's togetherness was in the high categories, while 61 percent said that the same of their sub-unit's skills in its main military role. Taken together, these results provide positive indications of aspects of readiness that complement the affective and instrumental results of the PCI.

A similar number of respondents (66 percent) also stated that their sub-unit's morale was in the high categories. This is another important baseline statistic, and coupled with the fact that only three percent rated their sub-unit morale as 'Low' and none as 'Very Low' indicates high levels of sub-unit morale across the sample. This is especially positive given the organisational changes many of the sub-units have experienced as a result of FR20. High levels of personal morale were also recorded (71 percent in high categories), in stark contrast to recent data on morale in the regular army (MoD, 2016).

Supporting the PCI scale scores, generally high levels of individual confidence in sub-unit readiness across a number of other variables were recorded. This included high levels confidence in the sub-unit's major equipment systems (56 percent), although of note is that on average 35 percent said their confidence in this regard was 'Moderate'. In terms of individuals' confidence in their ability to do their job on operations given the correct pre-deployment training, 87 percent reported 'High' or 'Very High' levels of confidence. 83 percent reported similar levels of confidence in the ability of their sub-unit to perform on operations given sufficient pre-deployment training. Thus, morale and readiness in Army Reserve logistics units appears relatively strong.

Background Characteristics as Predictors of Cohesion, Readiness, and Personal Confidence

In order to isolate background characteristics, and understand if and how cohesion influenced Sub-unit Readiness and Morale, and Personal Confidence a number of multiple regressions were conducted on the 2015 data. The results of these separate regressions, each corresponding to one of the above outcomes, are displayed in Table 3.

Table 3 here

In terms of cohesion, background characteristics explained only three percent of the variance, indicating that these have only a minor impact on perceptions of cohesion. There was a relatively minor but significant difference between sub-units' perceptions of cohesion ($-.15$, Sig $= .19$). This is expected and is significant to the wider population. It also confirms that soldiers' own experiences of their sub-units are more important in shaping their perceptions of cohesion than any other background characteristics, including education, which has previously been shown to have a highly significant predictive ability with AR logistics soldier satisfaction (Author, 2016). Further supporting previous evidence that better educated soldiers are less satisfied with reserve service, there was a relatively strong association between higher levels of education and lower perceptions of cohesion at relatively significant levels ($-.62$, Sig $= .06$).

With Total Cohesion excluded from the regression, the most important background characteristic was sub-unit, which had a small but significant ($-.07$, Sig $= .037$) association with perceptions of cohesion and readiness. With Total Cohesion added, the total variance explained (R^2) by the model jumped from seven percent to 46 percent. This result compliments those of previous studies in combat forces, and highlights that reservists' perceptions of sub-unit cohesion is very strongly related to their sub-unit readiness and personal morale. This was also borne out by the relatively strong association at highly significant levels ($.34$, Sig $= .00$) between cohesion, and readiness and morale. This supports hypothesis 1.

In terms of Personal Confidence, with the Total Cohesion scale added to the regressions, the R² of the model also jumped from 4 percent to 38 percent, further supporting hypothesis 1, and indicating that perceptions of cohesion are also very important in explaining personal confidence. Indeed, as expected, cohesion had the strongest and most significant association with personal confidence (.15, Sig = .00). Being better educated was also negatively associated with personal confidence at significant levels (-.13, Sig = .05). This is likely due to the fact that better educated soldiers are more critical of their own abilities and the provision of personal equipment. It also supports previous research showing that better educated soldiers are less satisfied with most aspects of reserve service (Author, 2016).

Sub-Unit Perceptions of Cohesion

The next research question was to examine the difference in perceptions of cohesion between certain sub-units at the collective sub-unit level of analysis. In order to do this, eight sub-units were selected from those with the highest response rates expressed as a percentage of their average attendance. Annex A details the eight sub-units that were chosen for further analysis, and the organisational changes certain sub-units are undergoing as a result of FR20. The relatively low numbers of respondents in the sub-units impacted their confidence intervals, but this is to be expected for smaller groups.

Next, the selected sub-units' responses to the PCI scales and the Total Cohesion scale were examined, as shown in Table 4. Most of the sub-units displayed high levels of cohesion across all the components, and the average total cohesion score was 80/100. This is a good baseline metric for understanding cohesion in these sub-units, and, given the scale of the organisational change some of these sub-units have undergone, this a positive outcome that may indicate that perceptions of cohesion have not been too adversely affected by FR20. Nevertheless, it is noteworthy that the PCI identified that

reservists' satisfaction with time off and time for social events had the lowest of all the component scores.

Interestingly, although only indicative results, neither the regular logistics sub-unit, nor the regular infantry sub-unit had higher 'Total Cohesion' scores than their reserve counterparts. However, when sub-unit results on the separate bonding scales are examined a number of patterns emerge. Firstly, both regular units' low scores on the Organisational Bonding Instrumental, Needs, scale are important as they are significantly lower than the reserve units and have heavily negatively impacted these units' total cohesion score. Clearly, these regular units perceive more strongly that they do not have enough time to spend with families or socialise together, highlighting the increased workload associated with full-time service since the cuts to regular manning. Secondly and supporting hypothesis 2, both regular sub-units reported lower perceptions of Horizontal and Vertical Affective Bonding, and higher perceptions of the Horizontal and Vertical Instrumental, and Anomie scales than the mean scores for the reserve logistics sub-units. While this would initially appear to indicate that there are lower bonds between regular soldiers and their leaders, in fact when taken in tandem with the regulars' higher instrumental component scores, this may suggest the greater importance of task cohesion and an awareness of the discipline system in the regulars. This supports hypothesis 2 and previous research on the nature of British AR cohesion (Author, 2017).

Table 4 here

Sub-Unit Perceptions of Readiness and Morale

In order to examine collective perceptions of Readiness and Morale and Personal Confidence at the sub-unit level, the mean and standard deviations for the eight selected sub-units in 2015 are presented in Table 5 below. Of note are the relatively high levels of sub-unit readiness and morale recorded amongst the selected sub-units, supporting the cohesion evidence presented above. The average score per item on the scale was 4, a very similar score to those recorded on the PCI. Personal Confidence scores were comparatively lower than those on the Sub-Unit Readiness and Morale scale. As expected given its low cohesion score, and ongoing re-rolling, RLC 5 recorded the lowest readiness and morale score and the second lowest personal confidence score, highlighting the sensitivity of the PCI to unit context.

Table 5 here

Interestingly, and again only indicative given the small sample size, results for the regular infantry sub-unit indicated much higher perceptions of Sub-Unit Readiness and Morale, and Personal Confidence than either its regular logistics counterpart, or those in the reserves. While this result needs to be corroborated by further data, one possible explanatory factor is this infantry unit's higher readiness demands, and/or the greater awareness of readiness and morale as a result of the increased collective training burden associated with infantry units as discussed in Author (2017).

Individual Experiences of FR20 and Integration with the Regulars

The next section examines individual responses to the five items concerning experiences of FR20 to date, and the 12 items addressing experiences of integration with the regulars. Overall, the results showed lower levels of agreement than with the cohesion, readiness and morale items. There were generally higher levels in the 'Can't Say' category, and

higher percentages disagreed. While the 'Agree' category generally remained the second most popular choice amongst the sample, indicating that perceptions of the impact of the transformation are relatively positive, the fact that the 'Strongly Agree' percentages were relatively low indicate there is more to be desired from the reforms at this time.

Perhaps the most important baseline statistic concerning the impact of FR20 to date is recorded in the item concerning respondents' optimism that the policy will increase their sub-unit's capability. In 2015, responses to this item were skewed toward positive scores, indicating overall optimism that the reforms will prove successful. On average 54 percent said they agreed with the proposition, and 30 percent 'Couldn't Say'. In terms of perceptions of sub-units becoming better at their job as a result of FR20, 43 percent of respondents stated they 'Couldn't Say', while 38 percent agreed.

In terms of the introduction of better equipment as result of FR20, only 32 percent of both cap badges agreed with the proposition. REME reservists were significantly less positive than their RLC colleagues about the introduction of better equipment as a result of FR20, and this item recorded some of the least positive results in the entire survey, suggesting that the experience of better equipment into sub-units as a result of FR20 has been mixed. In terms of FR20 delivering better integration with the regulars during training, just over a third agreed this had occurred in their sub-unit. However, there were relatively high levels of mid-point scores, and 24 percent disagreed. Supported by other results above, and the evidence presented by Author (2016), this indicates that opportunities to train with the regulars could be increased further.

In 2015, the items concerning experiences of integration with the regulars over the last 12 months had a smaller sample size (n= approx. 210) as a result of the exclusion of soldiers who did not have relevant experience. The first item asked whether integration with the regulars had increased soldiers' confidence in their individual skills. 55 percent

were in the agree categories. Slightly lower levels of agreement (46 percent) with the regulars' impact on sub-unit competence were recorded, with higher levels in the 'Can't Say' category (44 percent). 65 percent agreed that integrating with the regulars was a valuable experience, while on average 68 percent agreed they liked working with the regulars. Both of these items recorded some of the highest levels of agreement in this subset.

Sub-Unit Level Perceptions of Integration with Regulars and the Impact of FR20

In order to gain an understanding of the relationship between the 12 items concerning respondents' Experiences of the Impact of FR20 and Integration with the Regulars, it was necessary to conduct another EFA, detailed in Annex A. Once the factors were identified and scales confirmed, to examine the relationship between background characteristics and the Integration with Regulars and Impact of FR20 scales, separate multiple regression analyses, each corresponding to one of these outcomes, were conducted. Predictor variables were soldier background characteristics and sub-unit. In terms of experiences of working with the regulars, overall there were no major differences between units. Single soldiers were strongly associated with better experiences of working with the regulars at moderate levels of significance to the wider population (1.57, Sig = .05). This is similar to other scale scores indicating single soldiers' higher perceptions of morale and readiness and could conceivably be due to higher levels of motivations and fewer conflicts between reserve service and family life.

In terms of soldiers' experiences of the impact of FR20 to date, higher ranks were associated at high levels of significance with lower scores on this scale (-.15, Sig = .036). This is to be expected as higher ranks will have more military experience and arguably a wider organisational context within which to compare the current reforms. Next, to illustrate how the selected sub-units scored on the Integration with Regulars and Impact of FR20 scales, the means and standard deviations were calculated. These are presented

in Table 6 below. The average sub-unit score on Integration with Regulars was 25.5 out of a possible 35, with the response per item score (3.6) indicating that the average answer was slightly weighted toward 'Agree'. This indicates that most sub-units thought that integration with the regulars was a positive experience, and clearly some sub-units had better experiences than others, as detailed above. Of particular note is that although (or perhaps in spite of the fact that) RLC 5 recorded lower levels of cohesion, readiness and morale, and personal confidence, it recorded the highest score on this scale. This is very interesting as it suggests that positive experiences of the regulars are not necessarily influenced by perceptions of cohesion, readiness and morale, and personal confidence. In short, these experiences may be viewed as a separate factor, removed from sub-unit climate, by sub-unit members. Meanwhile, there were generally lower levels of agreement that FR20 was having positive impacts on the selected sub-units. The average sub-unit score on Impact of FR20 was 16.7 out of 25, with the response per item score (3.3) indicating that the average answer was weighted toward 'Can't Say'. Crucially, this indicates that respondents in the selected sub-units remained very much undecided about the real impact of FR20 on their sub-units in 2015.

Table 6 here

Perceptions of Cohesion, Readiness and Morale, and FR20 over time

A major research interest was to ascertain if sub-unit perceptions of cohesion, readiness and morale, and experiences of FR20, were changing as FR20 progressed. In terms of the three sub-units selected for longitudinal comparison between 2015-2016, it is noteworthy that the mean total cohesion scores remained relatively stable, but that in one sub-unit this had dropped by about 4 percent. A Paired Samples T Test revealed that the difference in cohesion scores over time in these three reserve sub-units was just at the limits of statistical significance ($\text{sig}=.41$, $t=.72$, $\text{df}=73$). This indicates that cohesion scores have

changed by a small but significant amount in both directions and supports the qualitative data on this subject (Author, forthcoming).

In terms of these three sub-units scores on the Sub-Unit Readiness and Morale, and Personal Confidence scales, there were no significant changes in the mean in either (Sig=. 65, $t = .48$, $df = 77$; Sig=.81, $t = 2.4$, $df = 82$, respectively). This further supports the qualitative data previously referenced and the quantitative cohesion data above, that there was little significant change as a result of FR20 between 2015-16. Although these results are indicative only, they do suggest that FR20 is failing to increase cohesion and readiness and morale in a significant manner, contrary to hypothesis 3.

Conversely, a paired T Test with the 2016 data for the three selected sub-units indicated significant positive increases in the mean scores (8.79 at a 95% confidence level, Sig=.00, $t = 11.25$, $df = 40$) in these units' attitudes to Integration with the Regulars since 2015. As such, this data supports other data (Author, forthcoming) that FR20 is increasing reservists' exposure to the regulars. Conversely, there was a decrease in confidence that FR20 would deliver increased sub-unit capability by the time of the policy's projected completion, at similar levels of significance (-9.81 mean, Sig= .00, $t = -8.22$, $df = 32$).

Discussion

In terms of individual perceptions of cohesion, the average 2015 score of 4/5 is an important baseline statistic for understanding British AR logistics cohesion. It indicates that, in a statistically significant sample and allowing for differences in coding, levels of perceived cohesion amongst AR reservists are similar to those recorded in Siebold and Kelly's research, and subsequent studies of both regulars and reservists (Siebold, 1996). In terms of informing policy, this indicates that in general, and despite substantial organisational changes within some of the sub-units surveyed, these soldiers' perceptions

of their sub-unit's cohesion were relatively high in 2015. Indeed, they were comparable to those recorded in regular forces. This is interesting when taken in conjunction with the limited previous research on reserve cohesion as it suggests that reservists may not assess their individual cohesion as lower than their regular counterparts, despite obvious organisational differences in training time, access to equipment and levels of readiness.

At the same individual level of analysis, an examination of the components of cohesion revealed that the highest scores were recorded in lower ranks' perceptions of team work. This finding was supported by high scores in scales measuring lower ranks' pride in their sub-unit, and their positive contribution to sub-unit missions. Clearly, the fact that two of these three high-scoring scales measure instrumental or task-oriented cohesion, rather than affective cohesion, is interesting as it suggests that working together to complete tasks (and hence fulfil operational requirements) is where these reservists perceive their sub-units are most cohesive. However, when indicatively compared with regular sub-units it is clear that perceptions of social cohesion are higher in reserve sub-units than in regular units, while those of task cohesion are lower. Again, this research is not conclusive given the small regular sample size and further research is needed to prove hypothesis 2, but the initial evidence does support the qualitative data (Author, 2017) that social cohesion is more important in AR logistics service.

In terms of reserve logistics sub-unit readiness, in 2015 the majority rated it moderate, but two thirds rated their sub-unit's morale as high. Only a small percentage rated their morale as low. The strong individual perceptions of Sub-Unit Readiness and Moral and Personal Confidence complement the cohesion scores and are particularly interesting given the introduction of the tiered and cyclical force readiness structure for the reserves under FR20. The results indicate that these reservists were confident in 2015 that the new system would provide the requisite training for them, and their sub-unit, to deliver to the required standard on operations. This is a positive indicator, and it appears

to be an interesting wider endorsement of the broader FR20 tiered readiness plan for the reserves. The slightly lower levels of individual confidence in the sub-unit's ability to do job on operations compared to their own ability complements the other results on readiness and morale, where individual scores are usually higher than at the sub-unit level. This is supported by previous research and is likely reflective of the greater number of factors that impact at this level, including personalities, degree of training of other members, unit leadership etc.

Overall, the statistical analyses to isolate background characteristics showed that these explained very little variance. The examination of cohesion's relationship with readiness and morale underscored the importance of cohesion in explaining perceptions of the both of these, and personal confidence. Supporting previous research and hypothesis 1, levels of cohesion amongst reservists explained the most variance in perceptions of sub-unit readiness and morale, and personal confidence. This underscores the importance of cohesion in delivering military capability, not only in regular forces, but also as this study proves, in the reserves. Nevertheless, an important finding from the background characteristics isolation the negative effect that more education has on perceptions of both cohesion and personal confidence. When combined with previous research on recruitment and retention in the AR (Author, 2016), there is clear and growing evidence that targeting this group could lead to better satisfaction, retention, and cohesion across the reserve population.

The aggregated sub-unit level perceptions of cohesion, readiness and morale were also high, at 80/100, indicating that despite some very serious organisational changes in some sub-units, overall perceptions of these variables remained high in 2015. This was a good outcome for the FR20 policy in general and shows that sub-unit cohesion did not appear to have been too adversely affected by the reforms at that time. Similarly, the sample found experiences of integrating with the regulars in training rewarding, although

given the smaller number of reservists who had done so, and their responses, opportunities to do so could be increased. Nevertheless, in 2015 just over half the sample agreed that FR20 would eventually increase their sub-unit's capability. Generally, when compared to scores on other scales, there were less positive perceptions about the impact of FR20 to date, and there was clear dissatisfaction with the provision of new equipment it has promised. Related to this, in 2015, most respondents were undecided about the actual impact of FR20 on their sub-unit.

Indeed, more important to understanding FR20's current trajectory is its impact over time, and the 2016 picture, although more limited in terms of its representativeness, did paint a less positive picture. The three sub-units selected for longitudinal comparison registered significantly lower levels of confidence in FR20 increasing their sub-units' capability, indicating that the policy is struggling to have a major positive impact. Importantly, it indicated that in these sub-units examined longitudinally, confidence in FR20 delivering on its aims has declined since 2015. More data is needed, but the evidence suggests that the policy may be running out of steam.

Similarly, there was only a small (but statistically significant) change in cohesion, and no significant changes to perceptions of readiness and morale, nor personal confidence in the three sub-units, thereby raising questions about the overall effectiveness of FR20 in delivering more capable reserve logistics units. Contrary to hypothesis 3, it appears that FR20 is struggling to significantly improve AR soldiers' perceptions of their cohesion, morale and readiness and hence sub-unit capabilities. Conversely, the 2016 data indicated that FR20 had significantly increased reservists' perceptions of integration with the regulars. This likely reflects more exposure to the regulars over time as a result of FR20's integration drive, and positive experiences during this increased exposure.

Conclusion

This article set out to examine reservist logisticians' perceptions of cohesion, readiness and morale, and experiences of FR20 in a representative sample of reserve logistics sub-units. Overall, it found that perceptions of cohesion, readiness and morale remained relatively high in these sub-units. This represents the first investigation of these variables in the British AR, and is a good baseline indicator that in 2015-16 AR units remained relatively confident of their ability to provide the capability required of them if called upon to do so. In terms of hypotheses 1, the data found that perceptions of cohesion explained the most variance in the latter two variables, and given the separation of these variables using CFA, it provides further evidence of the importance of cohesion on other unit effectiveness indicators. This supports Siebold's (2011) and Griffith's (2007) analyses of the importance of cohesion in explaining other factors linked to military effectiveness. Similarly, this paper has shown that the PCI is an accurate and easily modifiable tool for assessing British AR cohesion, and could easily be adopted by units themselves to identify possible issues. Finally, in accordance with hypothesis 2, it provided some evidence that reserve units generally report higher levels of affective bonding than their regular counterparts. This is especially interesting when placed in the context of King's arguments on the rising importance of task cohesion in professional militaries, as it suggests that due to the part-time nature of reserve service with therefore fewer opportunities to train collectively, social bonds may still provide the primary locus of cohesion in the reserves. This also supports previous qualitative research on this matter (Author, 2017).

In terms of FR20, although some of the data presented here is only indicative and the limitations of the small sample size in 2016 must be acknowledged, overall it does suggest that the policy is delivering better integration with the regulars for these reservists. As other research has shown, this integration is driving the professionalisation

of the AR and the inculcation of regular values into the force. On a similarly positive note, perceptions of cohesion, readiness and morale, remained relatively high. But the picture is mixed. FR20 has clearly failed to have a large and significant impact on cohesion, readiness and morale, and personal confidence in some of these sub-units to date, despite the policy being three years into its projected five-year lifespan when the second tranche of data was taken. Indeed, what is significant is that sub-units' confidence in their ability to deliver the capability required by FR20 appears to have dropped over time, raising questions as to the longer-term trajectory of the policy. Nevertheless, future research is needed to confirm this trend. Areas of particular interest include generating another data set on current perceptions of cohesion, readiness and morale and the impact of FR20 as it ends its projected lifespan, and further large n comparative data on the differences forces in the strength of response to the affective/instrumental bonds between regular and reserve forces.

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